

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1 – 9. (canceled)

10. (currently amended) A system to optimize resource planning for asynchronous digital subscriber line (ADSL) services comprising:

a network management system (NMS) in communication with an ADSL network, wherein said NMS cooperates with said ADSL network using an element management system (EMS), said EMS capable of communicating with ADSL network components using ADSL network component communication protocols and standards; and

a computing application, said computing application operating on said NMS capable of allocating, tracking, and managing deterministic resource configuration variables that are used to create permanent virtual circuits (PVCs) on said ADSL network;

wherein said NMS uses said deterministic configuration variables to reanimate hung PVCs; and

~~The system recited in claim 9,~~ wherein said NMS cooperates with said EMS to communicate information indicative of said hung PVCs to said ADSL network components such that said ADSL network components can reanimate said hung PVCs, said NMS calculating said deterministic variables using said computing application to ascertain the connection positions of the PVC on said ADSL network components.

11 - 12 (canceled)

13. (currently amended) A method to optimize resources of an ADSL network providing ADSL services, comprising the steps of:

(a) providing a network management system (NMS) capable of calculating, tracking, and storing deterministic configuration variables used in the provisioning of resources on an ADSL network by providing a computing application to operate on said (NMS), said computing application:

creating, managing, and communicating deterministic configuration variables to cooperating ADSL network components for the provisioning of resources; and

~~The method recited in claim 12, wherein the act of providing said computing application further comprises the act of calculating a virtual circuit identifier (VCI) value, said VCI value being calculated using a plurality of ADSL component configuration data comprising any of connection position information, port information, and sequence position information; and~~

(b) providing a communication means to allow said NMS to communicate with said ADSL network.

14. (currently amended) The method recited in claim 13, wherein the step act of calculating said ~~virtual circuit identifier~~ (VCI) value further comprises the step act of reverse engineering resource allocations using said VCI value to ascertain the configuration values of said ADSL network components.

15 - 17 (canceled)

18. (currently amended) In an ADSL network comprising a network management system (NMS), an element management system (EMS), at least one remote access multiplexer (RAM), and at least one central office digital subscriber line access multiplexer (CO DSLAM), a method to provision resources on said ADSL network comprising the steps of:

calculating deterministic configuration variables by said NMS by ~~The method recited in claim 17, wherein said calculating step further comprises the step of determining RAM and CO DSLAM configuration values for inclusion in providing said deterministic configuration variables; and~~

communicating said calculated deterministic configuration variables to said ADSL network by said NMS using said EMS, said EMS being communicatively coupled to said RAM and CODSLAM.

19. (currently amended) The method recited in claim 18, wherein determining RAM and CO DSLAM configuration values ~~said determining step~~ further comprises the steps of communicating with said RAM and said CO DSLAM by said NMS through said EMS to obtain said RAM and CO DSLAM configuration values.

20. (currently amended) In an ADSL network comprising a network management system (NMS), an element management system (EMS), at least one remote access multiplexer (RAM), and at least one central office digital subscriber line access multiplexer (CO DSLAM), a method to provision resources on said ADSL network comprising the steps of:

calculating deterministic configuration variables by said NMS by ~~The method recited in claim 17, wherein said calculating step further comprises the steps of~~ determining the capacity of said RAM and said CO DSLAM to ascertain the range of values for said deterministic configuration values for communication by said NMS, and choosing a formula associated with said determined capacity for use in calculating said deterministic configuration values; and

communicating said calculated deterministic configuration variables to said ADSL network by said NMS using said EMS, said EMS being communicatively coupled to said RAM and CODSLAM.

21. (canceled)

22. (currently amended) In an ADSL network having a digital subscriber line access multiplexer (DSLAM), a plurality of remote access multiplexers (RAMs) communicatively connected to said DSLAM, and a plurality of subscribers communicatively connected to said DSLAM by way of said plurality of RAMs, wherein each subscriber is identifiable at said DSLAM by a combination of a virtual circuit identifier (VCI) value and a virtual path identifier (VPI) value, a method of assigning VCI values to a subscriber comprising the acts of:

identifying a RAM to which said subscriber is connected;

assigning a sequence number, n, to said RAM, said sequence number being based on a ~~the~~ DSLAM input port position to which said RAM is connected;  
identifying a port on said RAM to which said subscriber is connected;  
assigning a position number, Mpos, to said RAM, said position number being in a range beginning with the number zero, said position number being based on a ~~the~~ RAM input port to which said subscriber is connected;  
determining the number of ports, P, on said RAM;  
computing the value of  $P*(n-1) + Mpos$ ; and  
assigning a VCI value for said subscriber based on the computed value.

23. (original) The method of claim 22, wherein P is equal to 8, and wherein the range of values for Mpos is zero through seven.

24. (original) The method of claim 23, wherein acceptable VCI values are in the range 33-1023, and wherein said assigning step comprises assigning said subscriber the VCI value according to the formula:

$$33 + (n-1) * 8 + Mpos.$$

25. (currently amended) The method of claim ~~24~~ 25, further comprising the step ~~act~~ of determining whether n is greater than a pre-defined parameter X.

26. (currently amended) The method of claim 25, wherein the computed value is computed based on mod ((n-1)/(X-1)) (n-1) mod X if n is greater than X.

27. (currently amended) The method of claim 26, further comprising the step ~~act~~ of assigning a VPI value based on whether n is greater than X.